

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

**UNITED STATES PATENT AND TRADEMARK OFFICE**

---

**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

---

Ex parte JOHN R. HACKER, DAVID B. HARDER,  
JESS T. NORDBY, MICHAEL J. GUSTAFSON  
and ALAN D. KLEIN JR.

---

Appeal No. 2005-0739  
Application No. 09/800,413

---

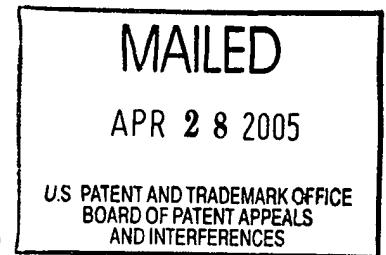
ON BRIEF

---

Before FRANKFORT, NASE and BAHR, Administrative Patent Judges.  
BAHR, Administrative Patent Judge.

**DECISION ON APPEAL**

This is a decision on appeal from the examiner's final rejection of claims 19-21 and 24. Claims 22 and 23 stand withdrawn as not being directed to elected species. No other claims are pending in this application. The appellants filed an amendment with their appeal brief amending claim 19 to remove the language "single piece" before "housing" in order to overcome the rejection under 35 U.S.C. § 112, first paragraph.



This amendment was entered and the examiner has withdrawn the rejection under 35 U.S.C. § 112 (answer, page 3).

### BACKGROUND

The appellants' invention relates to liquid filter assemblies. Further understanding of the invention may be obtained from a reading of claim 19, which is reproduced *infra* in the opinion section of this decision.

### ***The Prior Art***

The examiner relied upon the following prior art references in rejecting the appealed claims:

Mules	5,584,987	Dec. 17, 1996
Gullett	5,695,636	Dec. 9, 1997
Knecht (Austrian patent document)	236,421	Oct. 26, 1964

### ***The rejection***

Claims 19-21 and 24 stand rejected under 35 U.S.C. § 103 as being unpatentable over Knecht in view of Mules and Gullett.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellants regarding the above-noted rejection, we make reference to the answer for the examiner's complete reasoning in support of the rejection and to the brief and reply brief for the appellants' arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellants' specification and claims, to the applied prior art references, and to the respective positions articulated by the appellants and the examiner. As a consequence of our review, we make the determinations which follow.

Independent claim 19 reads as follows:

19. A liquid filter assembly comprising:
  - (a) a filter head; said filter head having a center tube, an outer tube, a first liquid flow port, and a second liquid flow port; said outer tube circumscribing said center tube;
    - (i) said outer tube defining an end, an outer tube end port at said end, and an outer tube flow passageway extending between and in fluid communication with said first liquid flow port and said outer tube end port;
      - (A) said outer tube further including an outer tube threaded region;
    - (ii) said center tube defining a center tube flow passageway and a center tube end port; said center tube flow passageway extending between and in fluid communication with said center tube end port and said second liquid flow port;
      - (A) said center tube projecting outwardly from said end of said outer tube;
  - (b) one of a spin-on canister filter and a bowl-cartridge filter operably connected to said filter head; said filter head being capable of receiving, separately, both a spin-on canister filter and a bowl-cartridge filter; said one having a housing defining an interior and a cartridge filter operably oriented within said housing interior; said cartridge filter including a region of filter media and a non-removable inner liner;

- (i) said filter having a filter threaded region threadably engaged to said outer tube threaded region to define a threaded connection;
  - (A) said threaded connection having a cross-sectional thickness no greater than 10 mm;
- (ii) said filter being in liquid flow communication with said outer tube end port and said center tube end port;
- (c) a first seal arrangement; said first seal arrangement oriented to form a first seal to inhibit leakage between said outer tube flow passageway and said filter; and
- (d) a second seal arrangement; said second seal arrangement oriented to form a second seal to inhibit leakage between said center tube flow passageway and said filter.

The appellants argue that the examiner has asserted that the same structure shown in Knecht corresponds to different and separate limitations of claim 19. Specifically, the appellants urge that Knecht "cannot be fairly interpreted to disclose that the center tube flow passageway (shown at 3) extends between and is in fluid communication with the second liquid flow port, which is also reference numeral 3" (brief, page 9). The appellant's objection appears to stem from the fact that, in describing the structure of Knecht corresponding to the claim limitations at issue, the examiner has only one reference number, 3, to which to refer. That Knecht does not provide a separate reference numeral for each of the various portions of the lubricating oil outlet 3 which correspond to the center tube flow passageway, the center tube end port and the second liquid flow port of claim 19, however, does not vitiate the

examiner's position that such structure is disclosed by Knecht. As explained on page 7 of the answer, the lubricating oil outlet 3 of Knecht, which corresponds to the center tube flow passageway of claim 19, extends between and in fluid flow communication with the center tube end port defined at the lower opening of the oil outlet and the second liquid flow port defined at the upper opening of the oil outlet. This fully responds to the claim limitation at issue.

The examiner concedes that Knecht lacks an outer tube threaded region and a filter threaded region as called for in claim 19, with Knecht instead disclosing attachment, "e.g., by means of a bayonette union or joint" (translation, page 4), but notes that Mules discloses that a bayonet and a threaded connection between the inner surface of an outer tube of a filter head and the outer surface of a filter are known alternatives (column 4, lines 38-45) and determines that it would have been obvious to modify Knecht's filter to have included the threaded connection as taught by Mules in order to provide a known alternative connection for the filter (answer, page 5). The appellants argue that, while Mules may teach that bayonet and threaded connections are alternatives in the context of Mules' arrangement, the structures and arrangements shown in Knecht are so different from those shown in Mules that one of ordinary skill in the art would have had no motivation to have modified Knecht by substituting the threaded connection for the bayonet connection.

We appreciate that the structure of Mules differs from that of Knecht but do not agree with the appellants that these differences are of such a nature as to dissuade one of ordinary skill in the art from applying the teaching of Mules of the bayonet and threaded connections as alternatives in fastening a filter head to a filter housing to a structure as disclosed by Knecht. In light of the recognition of bayonet and threaded connections as alternatives in the art, as evidenced by Mules, and Knecht's disclosure of a bayonet union or joint merely as exemplary for attachment of the headpiece 1 to housing 4, the provision of either a threaded connection or a bayonet connection of Knecht's headpiece 1 to the housing 4 would have been obvious to one of ordinary skill in the art.

As for the recited cross-sectional thickness of the threaded connection as "no greater than 10 mm," a relatively broad range, in our observation, Gullett discloses a threaded connection within this range for attaching a cylindrical filter housing 20 to a top plate assembly 30 in a reusable fluid filter assembly. The top plate assembly 30 is in turn secured to a filter mounting base 80. Specifically, Gullett teaches that the first wall portion 22 of the filter housing 20 should have a thickness in the range of about 3 to 4 mm and preferably about 3.5 mm and that a first wall thickness of less than 3 mm is undesirable because, with external threads machined therein, the structural integrity and repeatability of use of the housing would be compromised (column 4, lines 13-22). Likewise, according to Gullett, a first wall thickness greater than about 4 mm is

undesirable because it presents practical limitations on the fabrication of the housing and represents a waste of labor and materials (column 4, lines 24-29). Regardless of whether or not the top plate assembly 30 can be considered as analogous to the headpiece 1 of Knecht, the filter housing wall thickness considerations discussed by Gullett would appear to have equal application to Knecht's housing 4 in the eyes of one of ordinary skill in the art. Accordingly, to provide Knecht's housing 4 with a wall thickness in the range of about 3 to 4 mm, which would necessitate a threaded connection cross-sectional thickness of less than 10 mm, within the recited range, for the connection of the housing 4 to the headpiece 1, would have been obvious to one of ordinary skill in the art to achieve the structural integrity, fabrication and economic objectives articulated by Gullett.

The appellants further contend that, even if modified as proposed by the examiner, Knecht's headpiece 1 still does not meet the limitation that the filter head is "capable of receiving, separately, both a spin-on canister filter and a bowl-cartridge filter" as required by claim 19. The appellants seem to base this argument on the fact that Knecht shows only a single type of filter, a bowl-cartridge filter, connected to the headpiece 1. We note, in this regard, that claim 19 does not require both a spin-on canister filter and a bowl-cartridge filter. Rather, claim 19 recites a filter head and one of a spin-on canister filter and bowl-cartridge filter operably connected to the filter head, with the filter head having the capability to receive either type of filter. We agree with

the examiner that Knecht's headpiece 1, as modified as discussed above to have a threaded region, appears reasonably capable of receiving either the bowl-cartridge type filter disclosed by Knecht as connected thereto or an appropriately configured spin-on canister filter, that is, one provided with an appropriately sized and threaded filter housing to engage the threaded region of Knecht's headpiece 1 and structure for mating with the lubricating oil outlet 3 of Knecht's headpiece 1.

In light of the above, we do not find any of the appellants' arguments persuasive as to the patentability of claim 19 over the combination of Knecht, Mules and Gullett. It follows that we shall sustain the examiner's rejection of claim 19. Inasmuch as the appellants have made no additional arguments with respect to claims 20, 21 and 24, we shall sustain the rejection of these claims as well.

#### CONCLUSION

To summarize, the decision of the examiner to reject claims 19-21 and 24 under 35 U.S.C. § 103 is affirmed.



AFFIRMED

BOARD OF PATENT  
APPEALS  
AND  
INTERFERENCES

Appeal No. 2005-0739  
Application No. 09/800,413

Page 10

MERCHANT & GOULD PC  
P.O. BOX 2903  
MINNEAPOLIS , MN  
55402-0903